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ABSTRACT

This study examined the effectiveness of an intervention program for culturally deprived preschoolers living in a rural area. The subjects, 29 children between the ages of 3 years 10 months and 5 years 3 months, were administered a kindergarten readiness test and the Peabody Picture Vocabulary Test at the beginning of the school year and again at the end of the school year. Intervention activities were presented to the experimental children by professionals and paraprofessionals, and an attempt was made to maintain each child's strengths while remediating areas of deficit. Children in a second contrast group participated in a traditional nursery school setting, without intervention by professionals and paraprofessionals. A third group had no preschool experience. Findings indicated that the experimental subjects made greater gains on all the tasks than did children in other groups. A comparison between the contrast and experimental groups and the group with no preschool experience appeared to provide support for advocates of preschool: results indicated that preschool experience in either a traditional or a developmental program, was better than no preschool experience. (Author/CM)

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PRESCRIPTIVE TEACHING

IN A PRESCHOOL PROGRAM

Karen Jorgenson

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Karen Jorgenson

ABSTRACT

PRESCRIPTIVE TEACHING
IN A PRESCHOOL PROGRAM

by Karen Jorgenson

Subjects for study were 29 children between the ages of three years ten months and five years three months, residing in a rural area. They were administered a kindergarten readiness test and the Peabody Picture Vocabulary Test, at the beginning of the school year, and again at the end of the school year. In an experimental setting, intervention activities were presented to the children by professionals and paraprofessionals, specific attention being given to each child's areas of deficit, while maintaining areas of strength. The children in the contrast group participated in a traditional nursery school setting, without intervention by professionals and paraprofessionals. A third group had no preschool experience. Comparing the resultant scores on the subtests, it was concluded that the subjects showed improvement in most cognitive and affective areas of development when exposed to a semi-structured preschool setting.

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INTRODUCTION

Is it possible to utilize a carefully designed preschool intervention program which will result in improved performance of the culturally deprived child when assessed for kindergarten readiness? Gray, Klaus, Miller, and Forrester (1966) designed an early training program for culturally disadvantaged children which indicated that the progressive retardation of deprived children could be checked with the provision of an individualized and specific program. This could be accomplished by maintaining a high adult-child ratio and by giving attention to daily and weekly lesson plans.

The major goal of the program of study, then, for the experimental group was to attempt to have performance differences occur between groups through the implementation of an individualized program with specific attention being given to the variables, lesson plans and adult-child ratio.

Mowbray and Salisbury (1975) indicated that the child's learning potential is affected by the interaction of the physical, intellectual, emotional, and social development of the child. Thus, the program was designed not only to show statistically significant gains in the cognitive domain, but to also provide for the total development of the young child.

Weekly lesson plans included fine and gross motor activities, experiences in science, songs and musical games, manipulative activities, the development of body awareness, and the development of social skills. Activities for visual discrimination and visual perception were included, as Getman (1968) reported that these were learned skills.

After initially administering the kindergarten readiness assessment, the areas in which the experimental group was generally deficit were identified. Daily lesson plans concentrated specifically in the areas of visual motor, visual discrimination, counting, use and recognition of numbers 1 through 10, and the development of relational concepts. The daily program also included language development since "evidence suggests that it is not simply listening to the speech of others that the child acquires verbal skills, as it is by his attempts to respond to their verbal productions and his being rewarded for these efforts" (Gray, et al., 1966).

Experiences provided through this particular preschool program were selected to stimulate the mental growth of the young child. Lavatelli (1973) indicated that stimulating experiences are important in an early childhood environment, stimulating intellectual growth. This is particularly emphasized in early childhood education programs for the disadvantaged in which intervention is necessary to "counteract the effects of a poor socio-economic environment" (Lavatelli, 1973).

Supportive of this rationale, Deutsch (1967) noted that children from a poor environment beginning school at the first grade level scored significantly lower when administered the Stanford-Binet, than those subjects in the control group with kindergarten experience. These results lend "further evidence to the hypothesis of a cumulative deficit in IQ scores the longer the child remains in a culturally disadvantaged environment"(Lavatelli, 1973).

Thus, there is evidence that participating in compensatory experiences designed to overcome environmental deficit will enable a child to participate more successfully in school.

METHOD

Subjects

The children in the experimental group in this study were six girls and eight boys between the ages of three years ten months and five years three months. They attended the Child Development Center at Mid Michigan Community College at least eight hours per week for 12 weeks. The children were voluntarily placed in the setting by their parents. These children obtained intelligence scores on the PPVT ranging from 71 to 132, with a mean of 98.

In the contrast group there were six girls and five boys between the ages of four years two months and five years. These children attended a traditional nursery school less than five hours per week for 22 weeks and had intelligence scores on the PPVT ranging from 96 to 125, with a mean of 107. The mean IQ score for the contrast group did not differ significantly from the mean IQ score for the experimental group.

The goal for the students in the experimental group during their eight month attendance at the Child Development Center was to improve their competencies in the area of kindergarten readiness. The study was conducted between September, 1975 and April, 1976.

The experimental group was administered the Peabody Picture Vocabulary Test and Developmental Tasks for Kindergarten Readiness (Lesiak, 1975) in October, six weeks after the start of the fall program, and were re-assessed in April. The contrast group was assessed in December, six weeks after the beginning of nursery school.

A third group, referred to here as the no-school group, consisted of one girl and three boys between the ages of four years seven

months and five years five months. They were referred to the Child Development Center after being identified by the local intermediate school district as not being ready for kindergarten. These children had moderate to severe speech and language difficulties, with average intelligence scores.

Materials

The Developmental Tasks for Kindergarten Readiness (Lesiak, 1975) was used for evaluation of each child's abilities in the area of readiness for kindergarten. The tasks included: Social Interaction; Body Concepts; Visual Motor tasks; Visual Discrimination; Auditory Sequencing; Auditory Association; Visual Memory; Recognition of Colors; Number Knowledge (counting to ten); Use of Numbers; and Recognition of Numbers one through ten; Recognition of Letters of the Alphabet; and Relational Concepts.

The Peabody Picture Vocabulary Test was utilized as a standardized intelligence test for both groups.

Procedure

Remediation for the experimental group was determined according to each child's performance on the developmental tasks. A "prescription card" was set up for each subject, listing the subject's deficit areas.

The remedial approach carried out was one in which an attempt was made to maintain each child's strengths while remediating deficits. This was implemented through the utilization of interest centers, self-directing activities, and through daily activities in which the whole group of children participated.

Directed learning activities were conducted in small groups of children for short periods of time. Time was provided also for individual unrestricted choice of activity. Materials available to children were manipulatable, purposeful, attractive, and self-teaching, with consideration of the child's developmental needs.

Daily activities included a lesson from the Peabody Language Development Kit, Level 1, a fine-motor exercise, utilizing Dubnoff and Frostig materials, an exercise in the development of number concepts, and lessons in color and letter recognition and spatial relationships. The program also specified weekly lessons in science, social relationships, visual discrimination and memory, and the development of self-awareness.

The prescriptive method was not implemented for the contrast group; the teacher was unaware of the quest for comparative data and was encouraged to continue her traditional program as planned.

Post-testing was implemented at the end of the program to evaluate the effect of the preschool programs.

RESULTS

The results of t-tests calculated for each of the Developmental Tasks of Kindergarten Readiness indicated only one significant difference between the experimental group and the contrast group on the pre-test (Table 1). The only measure which differentiated between the two groups was Social Interaction; the experimental subjects' mean score (19.14) was significantly higher than the mean score (15.36) of their contrast group counterparts ($t = 2.71$, $p < .05$).

A comparison of post-test results (Table 1) indicated that the experimental group mean was higher than the mean of the contrast group for the following tasks: Auditory Sequencing Span ($t = 4.50$, $p < .05$) and Color Naming ($t = 2.22$, $p < .05$).

Although the two groups were not otherwise statistically different, comparison of the differences between means on the pre-test and post-test reveals that the experimental group had an overall better performance on the post-test as compared to the contrast group. Within-group t-test results presenting the experimental group first, followed by the contrast group, reflect greater improvement on the following tasks: Identification of Body Parts (2.07 > .74); Visual Motor (2.39 > .39); Visual Discrimination (1.29 > 1.02); Auditory Sequencing Span (0.51 > -1.42); Auditory Association (1.59 > .39); Recognition of Colors (2.59 > .80); Use of Numbers (2.17 > -.40); and Recognition of Letters (1.31 > 1.23).

The no-school group ($\underline{N} = 4$) mean scores are found in Table 3 and were compared with both the experimental and contrast group scores on the post-test. Table 2 shows that the no-school group scores were

Table 1. A Summary of the Experimental Group a
on the Developmental Tasks for Kind

TASK DESCRIPTION	EXPERIMENTAL GROUP		CONTRAST GROUP	
	PRE-TEST		PRE-TEST	
	MEAN	STANDARD DEVIATION	MEAN	STANDAR DEVIATI
Social Interaction	19.14	1.75	15.36	4.61
Body: Identification	13.14	2.28	13.64	2.69
Use	7.57	3.16	7.27	3.00
Visual Motor	4.57	3.96	4.91	3.11
Visual Discrimination	5.36	2.59	4.18	2.89
Auditory Sequencing Span	4.36	.74	3.73	.79
Auditory Association	12.29	3.50	13.09	2.07
Visual Memory	5.57	2.95	4.55	2.70
Color Naming	15.07	3.85	13.91	6.30
Counting	9.21	1.85	7.91	3.42
Number Use	3.71	3.12	4.55	2.98
Number Recognition	5.00	3.85	2.82	3.87
Alphabet Knowledge	7.86	9.57	3.73	5.52
Relational Concepts	19.14	4.07	17.09	3.96

Contrast Group Scores
arten Readiness

EXPERIMENTAL GROUP		CONTRAST GROUP	
POST-TEST		POST-TEST	
MEAN	STANDARD DEVIATION	MEAN	STANDARD DEVIATION
20.93	1.69	19.64	3.11
14.64	1.28		
		14.45	2.21
8.57	1.65	8.36	1.50
8.71	4.81	5.45	3.14
6.57	2.14	5.45	2.70
4.50	.65	3.27	.65
14.14	2.28	13.45	2.02
5.00	4.28	3.82	3.16
17.85	.36	15.73	3.41
9.71	.61	9.55	1.51
6.14	2.54	4.00	3.10
7.00	3.51	5.64	3.83
12.93	10.11	8.45	10.84
20.85	3.35	19.36	3.59

Table 2. Comparison of the Experimental Group and Contrast Group with the No-School Group: t-test*

TASK	EXPERIMENTAL vs NO-SCHOOL	CONTRAST vs NO-SCHOOL
Social Interaction	2.28	1.30
Body:		
Identification	4.23	2.50
Use	2.98	2.82
Visual Motor	2.90	2.42
Visual Discrimination	3.04	1.77
Auditory Sequencing Span	4.35	0.77
Auditory Association	3.82	3.40
Visual Memory	0.43	-.10
Color Naming	2.87	1.21
Counting	4.00	2.83
Number Use	4.10	2.06
Number Recognition	3.62	2.61
Alphabet Knowledge	2.32	1.37
Relational Concepts	2.35	1.56

* $p < .05$ when $t \geq 2.05$

Table 3. No-School Group Assessment Results

TASK	MEAN	STANDARD DEVIATION
Social Interaction	16.00	6.93
Body:		
Identification	11.25	1.50
Use	5.50	1.91
Visual Motor	1.25	1.26
Visual Discrimination	2.50	2.52
Auditory Sequencing Span	3.00	0.00
Auditory Association	8.50	3.00
Visual Memory	4.00	1.41
Color Naming	12.25	6.85
Counting	5.75	3.30
Number Use	.50	1.00
Number Recognition	.25	.50
Alphabet Knowledge	.50	0.00
Relational Concepts	14.75	6.70

significantly lower than the experimental group in all areas except the Visual Memory task. Compared to the post-test scores of the contrast group, the post-test scores of the no-school group were significantly lower on the following tasks: Body Concepts; Visual Motor; Auditory Association; Counting to ten; Number Recognition; and Use of Numbers. Maximum scores for each subtest are shown in Table 4.

Table 4. Developmental Tasks for Kindergarten Readiness

TASK DESCRIPTION	NUMBER POSSIBLE
Social Interaction	23
Body:	
Identification	19
Use	10
Visual Motor	16
Visual Discrimination	10
Auditory Sequencing Span	6
Auditory Association	16
Visual Memory	14
Color Naming	18
Counting	10
Number Use	8
Number Recognition	10
Alphabet Knowledge	26
Relational Concepts	20

DISCUSSION

The present study examined the effectiveness of an intervention program for culturally deprived pre-schoolers. The fact that there was only one significant difference (Social Interaction) in the pre-test scores between the experimental group and the contrast group indicates that the two groups were from similar populations.

The Developmental Tasks for Kindergarten Readiness was the assessment instrument utilized as the items are closely related to Wilson and Robeck's (1965) approach to the early identification of children's learning capacities as being predictive of school success in the early grades. Considering the kind of learning activities occurring in the primary grades, an analysis was made of the fundamental processes essential to classroom success. Specific areas considered included color identification, bead stringing, number recognition and relationships, writing ability, auditory perception, and social interaction.

In this experimental classroom, tasks were specifically provided to facilitate performance on visual motor tasks. These included tracing, utilization of sandpaper letters, cutting, tearing, and pasting opportunities, dot-to-dot activities, mazes, tinkertoys, games using jacks and marbles, stringing beads, and sewing on buttons. Color recognition was promoted through activities with the Cuisenaire rods and the use of color bingo, as well as using the names of colors throughout the curriculum.

Comparison between the contrast and experimental groups and the group with no preschool experience appears to provide support for advocates of preschool: results indicate that a preschool setting, be it traditional or developmental is better than no preschool experience.

However, it is interesting to observe that when the experimental group, contrast group and no-school group were compared (Table 3), the experimental group made greater gains on all of the tasks. It may be assumed, then, that the experimental setting provided a situation allowing for greater development in areas considered to be necessary for kindergarten readiness. Bereiter (1972) explained preschool program differences as differences in content emphasis, "different instructional programs appear to teach somewhat different things."

It may also be assumed from the results of the present study that a preschool setting may serve as an intervention program for deprived children prior to school entrance. The failures of environmentally deprived children, according to Ragan (1970), are "primarily a function of experience." Hymes (1974) indicated that under-six education could be a "screening device to spot children early who have special problems so that these youngsters can begin early to get the help they need."

Pulaski (1971) advocated prescriptive teaching, assessing a child's deficits and providing activities especially selected to overcome them. Utilization of educational methods initially developed for handicapped children, Peter (1975) has discovered, is "useful in the education of all children." He also focused attention on the child's

interaction with the environment and on changes within the environment associated with improved learning.

Perhaps the direction, then, in which the early childhood educators should proceed is toward the development of a pre-school intervention program. Brophy, Good, and Nedler (1975) indicated that the opportunity for early screening of young children can be provided through programs of early childhood education, thus allowing for the prevention rather than the remediation of learning disabilities. Diagnostic teaching for preschool children is also advocated by Hodges, McCandless, Spicker, and Craig (1971), who predicted that the effects of psycho-social deprivation of a semirural population could be counteracted by a "diagnostically based curriculum intervention program." This approach is designed to remediate observed deficits, cognitive and affective, of individual children.

In a comparative study of preschool programs for the disadvantaged, Weikart (1972) noted that the impact of preschool education was essentially immeasurable due to the lack of agreement on criteria. An advocate of an eclectic curriculum, Weikart (1972) emphasized a focus on the development of the whole child, providing activities for each child's level of development.

Evaluative variables, according to McAfee (1972), include a small sample size, missing data, characteristics of the children, language difficulties, affective reactions to testing, and tester variability. These variables reflect some of the "difficulties encountered by early childhood centers in developing programs and

evaluating their effectiveness, particularly by centers concerned with children from low income families."

The results of the present research have several implications for early childhood educators. They suggest that participation in preschool benefitted the children in each program; that research findings should be used as guidelines for the assessment of the content and quality of a preschool program; that unlike a strictly controlled laboratory study with unknown relevance to the classroom, this study tested procedures under the kind of conditions which can be expected to occur in any typical preschool setting; and that a preschool intervention program is beneficial.

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